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NOTES ON A FEW ASHEVILLE FUNGI

H. C. BEARDSLEE

(WITH PLATE 121, CONTAINING 2 FIGURES)

The occurrence of *Amanita porphyria* Fr. in the United States has been justly considered very doubtful. It has been reported several times, but these reports have seemed open to grave doubts. Lloyd, in his paper on the *Volvae*, expressed the opinion that it does not occur in this country, and in MYCOLOGIA for March, 1913, the same opinion is expressed. In view of this uncertainty, it seems worth while to give the facts upon which my report of its occurrence was based.

In 1905, in company with Mr. Lloyd, I found this species in abundance in Sweden. As is well known, it is quite distinct in appearance, whatever may be thought of its validity as a species. Its brown pileus and the annulus, which forms a peculiar sooty ring on the stipe as the plant matures, at once distinguish it from all its relatives. We learned to recognize it at once.

Two years later, while collecting in Maine, I found what seemed to be the same plant. The pileus was the same color as those we had seen in Sweden and the same sooty ring was formed on the stipe. It was found in spruce woods near Harpswell, under conditions which were closely similar to those in the woods near Stockholm where we had observed it. When compared with Swedish specimens, no difference in microscopic structure could be found. It is, of course, easy to err in identifications of the fleshy fungi, as our literature amply shows, but I feel quite certain of the identity of these plants, especially as the species was already well known to me. I have never seen it in North Carolina. Perhaps, with the station accurately known, its occurrence may later be verified by some collector.

Two other species of *Amanita* mentioned in the March MYCOLOGIA may also be worth a brief mention.

Our *Amanita russuloides* belongs to a group of four species which have been described in Europe. *A. junquillea* Quél., *A.*

vernalis Gill., *A. Amici* Gill., and *A. adnata* W. Smith. The first three are French species, the last English. The feeling of many students is that these are all forms of one variable species. Boudier states in a letter that he considers *A. vernalis* and *A. Amici*, both of which he has studied, forms of *A. junquillea*.

Mr. Rea, whose excellent knowledge of the English species is well known, has carefully observed *A. adnata* and finds that the characters which were relied upon in separating *A. adnata* are inconstant. He lists it as a synonym for Quélet's species. It would seem that we need not trouble ourselves unduly in regard to this species.

Our *A. russuloides* is abundant in the southern mountains, where it may be collected all through the summer. At Asheville, the form is a rather better *A. adnata* than the others. It has uniformly no annulus, though farther to the north it seems to have one. I have carefully compared it with specimens from Boudier and have also submitted specimens and photographs to him and to Bresadola. Both agree in considering our plant *A. junquillea*. A comparison of the specimens leads to the same conclusion.

Amanita cothurnata Atkinson will doubtless need further study and comparison before its status is satisfactorily determined. At Asheville, it is one of the most abundant species and also one of the most attractive. Whether it should be considered a form of *A. pantherina* Fries is a question which would be decided partly by our ideas of specific distinction. Bresadola, to whom I judge it was submitted, states that he considers it distinct in its smaller size, white color, and especially its globose spores. Like Murrill, I have never seen typical *A. pantherina* in the United States. I found it common in Sweden and always with the same dark pileus, with which the white warts contrasted finely. At no time did we observe a white specimen. In size, there does not appear to be much difference, though possibly the American plant is on the average smaller. My suspicions as to the validity of our species came from the discovery that the spores are not globose in the fresh plant. A curious change in the spores takes place as specimens are dried. The spores, which are at first ellipsoid, lose their cell contents and become filled with a large globule as described by Atkinson, and at the same time become inflated and

globose. This change has been observed in some other species. With the spores of the fresh plants alike, the most valid grounds of separation seem to be removed. I believe it to be the American expression of *A. pantherina* Fries, though in this conclusion all will doubtless not agree.

If we have not yet arrived at an agreement in regard to the species of *Amanita*, it is not strange that some of our larger and more difficult genera are still more or less confused. The species of *Russula* are so numerous and so difficult of determination that it will be some time before they are all unraveled. At Asheville, this genus is represented by a large number of species. A few of these are of special interest and four of them are discussed here as a slight contribution to the study of this perplexing group.

RUSSULA SQUALIDA Peck

This species seems as yet not well understood in the United States. At Asheville, it is extremely variable. Peck describes it as dark-purple, often blackish at the disk. The forms here are so variable in color that they might easily be referred to different species. One form is pale-olive, with the margin almost white, one is a beautiful bright-purple, which approaches lavender, and another closely agrees with Peck's description. It is, however, so marked by such strong characters that it is easy to recognize it in all its disguises. The strong odor, which becomes very pronounced and disagreeable as it dries, distinguishes it at once. The stipe also quickly becomes yellow if it is lightly scraped, and then dark-colored. The fact that the lamellae discolor in drying assists materially in identifying dried specimens.

It seems, however, to have been overlooked that this is a comparatively well known European species. Romell, in his careful study of the Swedish species of *Russula*, distinguishes it, and it was described from his notes as *R. graveolens*. One who had seen Romell's plant under his guidance could not fail to recognize it at once as our own *R. squalida*. It has every characteristic of our American plant. In colors, it agrees well with Peck's description. Maire in his latest work considers it *R. xerampelina* Fr., in part.

RUSSULA MELIOLENS Quélet

This species is common at Asheville and was for several years a puzzle. It is not far from *R. alutacea* and *R. integra*, but is distinct from both. It is not unlikely that it has troubled others who have found it. It is a robust plant, with a peculiar faded red color, mild taste and cream-colored spores. As it dries, it develops a strong odor of new meal, which is very distinct. Its spores are different from those of any species with which it can be confused. They are subglobose and almost smooth. Under an enlargement of 150 diameters, they often seem entirely smooth. A good oil immersion of higher power shows the surface marked with very delicate warts with faint reticulating lines. This is so very unusual in the fragile species of *Russula* that it gives a very accurate means of identification. It is probable that the range of this species will be found to be extensive.

Russula rubescens sp. nov.

Pileus convex, finally expanded and depressed, 5–8 cm. broad; surface red, margin paler, fading with age, thin, striate; context mild to the taste; lamellae rather close, white, adnate, forked, especially at the base; spores pale-yellow, subglobose, 7–9 μ , rough, echinulate; cystidia large, numerous, 50–65 \times 10–12 μ ; stipe white, at length becoming cinereous without and within, often blackening with age or in drying, quickly becoming red and then black when wounded, stuffed, becoming hollow.

This species seems especially well marked. The reddening of the stipe when scraped is seen in certain members of the *Compactae*, but a red species which has this character is a novelty. It suggests in some ways *R. depallens* Fries, which seems to be a puzzle to European mycologists. It is believed by them, however, to be different from that species. As it grows, I find the stipe always becoming blackish within and without at the base.

RUSSULA ALBIDULA Peck

Pileus firm, soon depressed and somewhat infundibuliform, 4–10 cm. broad; surface pure-white, viscid when moist, margin even; context extremely acrid to the taste; lamellae white, becoming yellowish, rather narrow, unequal, decurrent, a few forking;

spores light-yellow, broadly ellipsoid, marked with strong, broken reticulations, $8-9\ \mu$ long; stipe pure-white, solid, firm, equal, 4-6 cm. long, 1.5-2 cm. thick.

This is one of the *Furcatae*. It is closer to *R. sanguinea* than any of the other species, but seems amply distinct from it. It is always pure-white and one of our firmest species as well as one of the most acrid. The spores of *R. sanguinea* are in all my specimens roughly echinulate, which is entirely different from those of this plant, which are adorned with strong raised lines forming a broken reticulation. I find it especially in pine woods during September and October. I have had it under observation for six years and find it remarkably constant.

ASHEVILLE SCHOOL,
ASHEVILLE, N. C.

EXPLANATION OF PLATE CXXI

Fig. 1. *Russula rubescens* Beardslee.

Fig. 2. *Russula albidula* Peck.



FIG. 1. *RUSSULA RUBESCENS* BEARDSLEE



FIG. 2. *RUSSULA ALBIDULA* PECK